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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,877	04/19/2001	Shunpei Yamazaki	U756-2298	8131

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EXAMINER

LEWIS, MONICA

ART UNIT PAPER NUMBER

2822

DATE MAILED: 12/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,877

Applicant(s)

YAMAZAKI ET AL.

Examiner

Monica Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 17.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the amendment filed September 16, 2003.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant by the following: a) "a semiconductor region that has the same composition as the channel formation region or the low concentration impurity region" (See Claims 1, 2, 10 and 11); b) "a semiconductor region that has the same composition as the channel formation region or the low concentration impurity region" (See Claims 3 and 12); and c) "first wiring line through an insulating layer" (See Claims 1 and 10). Claims 4-9 and 13-18 depend directly or indirectly from a rejected claim and are, therefore, also rejected under 35 U.S.C. 112, second paragraph for the reasons set above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as obvious over Hirabayashi et al. (U.S. Publication No. 2002/0093019) in view of Hashimoto et al. (U.S. Publication No. 2003/0038303).

In regards to claim 1, Hirabayashi et al. ("Hirabayashi") discloses the following:

a) the pixel TFF has a channel formation region (1a) formed above a first wiring line (11a) through an insulating layer, and has a low concentration impurity region (1b and 1c) that is in contact with the channel formation region and overlaps the first wiring line (For Example: See Figure 3); and

b) the storage capacitor (70) is formed from a capacitor wiring line (3b) formed on the same layer as the first wiring line (For Example: See Figure 3).

In regards to claim 1, Hirabayashi fails to disclose the following:

a) a semiconductor region that has the same composition as the channel formation region or the low concentration impurity region, and from a part of the insulating layer.

However, Hashimoto et al. ("Hashimoto") discloses a semiconductor region that has the same composition as the low concentration impurity region (For Example: See Paragraph 148). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Hashimoto to include a semiconductor region that has the same composition as the low concentration impurity region as disclosed in Hashimoto because it aids in improving resistance (For Example: See Abstract).

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Additionally, since Hirabayashi and Hashimoto are both from the same field of endeavor, the purpose disclosed by Hashimoto would have been recognized in the pertinent art of Hirabayashi.

In regards to claim 2, Hirabayashi discloses the following:

a) the pixel TFT has a channel formation region formed above a first wiring line with a first insulating layer and a second insulating layer interposed between the channel formation region and the first wiring, and has a low concentration impurity region that is in contact with the channel formation region and overlaps the first wiring line (For Example: See Figure 3); and

b) the storage capacitor is formed from a capacitor wiring line formed on the same layer as the first wiring line (For Example: See Figure 3).

In regards to claim 2, Hirabayashi fails to disclose the following:

a) a semiconductor region that has the same composition as the channel formation region or the low concentration impurity region, and from a part of the insulating layer.

However, Hashimoto discloses a semiconductor region that has the same composition as the low concentration impurity region (For Example: See Paragraph 148). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Hashimoto to include a semiconductor region that has the same composition as the low concentration impurity region as disclosed in Hashimoto because it aids in improving resistance (For Example: See Abstract).

Additionally, since Hirabayashi and Hashimoto are both from the same field of endeavor, the purpose disclosed by Hashimoto would have been recognized in the pertinent art of Hirabayashi.

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In regards to claim 3, Hirabayashi discloses the following:

a) the pixel TFT has a channel formation region formed above a first wiring line with a first insulating layer, a second insulating layer, and a silicon oxide film, and has a low concentration impurity region that is in contact with the channel formation region and overlaps the first wiring line (For Example: See Figure 3 and Paragraph 147); and

b) the storage capacitor is formed from a capacitor wiring line formed on the same layer as the first wiring line (For Example: See Figure 3).

In regards to claim 3, Hirabayashi fails to disclose the following:

a) a semiconductor region that has the same composition as the channel formation region or the low concentration impurity region, and from a laminate of the first insulating layer and the silicon oxide film.

However, Hashimoto discloses a semiconductor region that has the same composition as the low concentration impurity region (For Example: See Paragraph 148). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Hashimoto to include a semiconductor region that has the same composition as the low concentration impurity region as disclosed in Hashimoto because it aids in improving resistance (For Example: See Abstract).

Additionally, since Hirabayashi and Hashimoto are both from the same field of endeavor, the purpose disclosed by Hashimoto would have been recognized in the pertinent art of Hirabayashi.

In regards to claim 4, Hirabayashi discloses the following:

a) the first wiring line is appropriately a conductive film mainly containing an element selected from the group consisting of tantalum (Ta), chromium (Cr), titanium (Ti), tungsten (W), molybdenum (Mo), and silicon (Si), or an alloy film or silicide film containing the above elements in combination, or a laminate of the conductive films, the alloy films, or the silicide films (For Example: See Paragraph 94).

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In regards to claim 5, Hirabayashi discloses the following:

a) the channel formation region of the pixel TFT and the semiconductor region of the storage capacitor are formed of the same semiconductor layer (For Example: See Figure 3).

In regards to claim 6, Hirabayashi discloses the following:

a) the first insulating layer is appropriately an oxide or halogenated compound containing an element selected from the group consisting of tantalum (Ta), titanium (Ti), barium (Ba), hafnium (Hf), bismuth (Bi), tungsten (W), thorium (Th), and lead (Pb) (For Example: See Paragraph 122).

In regards to claim 9, Hirabayashi discloses the following:

a) the pixel TFT is connected to the source wiring line and the gate wiring line, and the storage capacitor is formed under the source wiring line and/or the gate wiring line (For Example: See Figure 3).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as obvious over Hirabayashi et al. (U.S. Publication No. 2002/0093019) in view of Hashimoto et al. (U.S. Publication No. 2003/0038303) and Someya et al. (U.S. Publication No. 2002/0080295).

In regards to claim 7, Hirabayashi discloses the following:

a) the first wiring line (For Example: See Figure 3)

In regards to claim 7, Hirabayashi fails to disclose the following:

a) floating state.

However, Someya et al. ("Someya") discloses the use of floating state (For Example: See Paragraph 148). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Hirabayashi to include the use of floating state as disclosed in Someya because it aids in preventing deterioration (For Example: See Paragraph 148 and 149).

Additionally, since Hirabayashi and Someya are both from the same field of endeavor, the purpose disclosed by Someya would have been recognized in the pertinent art of Hirabayashi.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as obvious over Hirabayashi et al. (U.S. Publication No. 2002/0093019) in view of Hashimoto et al. (U.S. Publication No. 2003/0038303) and Murade (U.S. Publication No. 2001/0030722).

In regards to claim 8, Hirabayashi fails to disclose the following:

a) the first wiring line is kept at the lowest power supply electric potential.

However, Murade discloses the use of the lowest potential (For Example: See Paragraph 15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Hirabayashi to include the use of the lowest potential as disclosed in Murade because it aids in preventing deterioration (For Example: See Paragraph 15).

Additionally, since Hirabayashi and Murade are both from the same field of endeavor, the purpose disclosed by Murade would have been recognized in the pertinent art of Hirabayashi.

Response to Arguments

9. Applicant's arguments filed September 16, 2003 have been fully considered but they are not persuasive. Applicant argues that "Hashimoto et al. does not teach a storage capacitor formed from a capacitor wiring line on the same layer as the first wiring layer." However, Hirabayashi et al. ("Hirabayashi") does disclose that the storage capacitor (70) is formed from a capacitor wiring line (3b) on the same layer as the first wiring layer (11a) (For Example: See Figure 3). Therefore, Applicant's arguments are not persuasive.

Allowable Subject Matter

10. Claims 10-18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

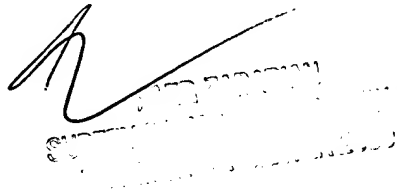
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 703-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final

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communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML

December 18, 2003

A handwritten signature in dark ink, appearing to be 'M. L.', is written over a rectangular stamp. The stamp contains some text that is mostly illegible due to the signature and the quality of the scan, but it appears to be an official mark or seal.